

AMENDMENTS TO THE DRAWINGS

A replacement drawing sheet, corrected in compliance with 37 C.F.R. 1.121(d), is enclosed.

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REMARKS

Claims 1-18 are pending in this application. Claims 1-18 stand rejected. In that regard, Claims 4 and 9 have been rejected under 35 U.S.C. §112, and Claims 1-18 have been rejected under 35 U.S.C. §103(a). Accordingly, Claims 1, 4, 5, 7-12, 16, and 18 have been amended, and Claim 6 has been canceled.

Further, the specification and the drawing have been objected to for informalities. In response, both the specification and the drawing have been amended to correct these informalities.

In addition, the Office Action raises other issues including provisional non-statutory double patenting rejections and an assignee requirement. These issues have been addressed below.

Objections To the Specification

The specification has been objected to for informalities. Specifically, in the formula for zinc borate at page 9, line 15, and page 15, line 28, the number "14,5" should be properly "14.5". In addition, at page 12, line 28, the term "radicalar" should be properly "radical". Accordingly, applicants have amended the specification to replace "14,5" with "14.5" and "radicalar" with "radical" at the noted locations in the specification.

Objection To the Drawing

The drawing is objected to because the axes are unlabeled and the results are unlabeled. Accordingly, applicants have enclosed a replacement drawing sheet in compliance with 37 C.F.R. 1.121(d) to correct the informalities relating to the x-axis and y-axis not being labeled. In addition, indicia "A", "B", and "C" have been added to the curves, as described at page 13, line 27, to page 14, line 2, of the specification.

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Claim Rejections Under 35 U.S.C. § 112

Claims 4 and 9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. Specifically, the Office Action states that Claim 4 contains unclear phraseology regarding use of the word "and". Accordingly, applicants have amended Claim 4 to clarify the phraseology.

Claim 9 recited the hydrated alumina has the formula Al_2O_3 , which the Office Action states is thought to be incorrect because alumina hydrate is thought to be $\text{Al}(\text{OH})_3$. Applicants agree and have amended Claim 9 to recite $\text{Al}(\text{OH})_3$.

Provisional Non-Statutory Double Patenting Rejections

Claims 1-18 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-16 of copending U.S. Patent Application No. 10/497,267 (hereinafter "the '267 application") in view of U.S. Patent No. 3,261,800, issued to Collins (hereinafter "Collins"), or U.S. Patent No. 3,609,372, issued to Vogel (hereinafter "Vogel"), and over Claims 1-11 and 13-18 of copending U.S. Patent Application No. 10/490,714 (hereinafter "the '714 application") in view of Collins or Vogel.

With respect to the '267 application, independent Claim 1 of the present application, as amended above, recites a matrix based on a vinylester resin, at least one polyamide, and an inorganic filler capable of slowing and absorbing neutrons, the organic filler comprising at least one hydrogenated inorganic compound and at least one inorganic boron compound. Applicants submit independent Claims 1 and 16 (and the claims depending therefrom) are not obvious over claims of the '267 application and Collins or Vogel because Collins and Vogel do not suggest a neutron shielding material that includes the specifically recited vinylester resins and at least one polyamide.

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With respect to the '714 application, independent Claim 1 of the present application, as amended above, recites a matrix based on a vinylester resin. Claims 1-15 of the '714 application disclose a neutron shielding material based on an unsaturated polyester resin. Applicants submit independent Claims 1 and 16 (and the claims depending therefrom) are not obvious in view of the claims of the '714 application and Collins or Vogel because the combination does not suggest a neutron shielding material based on a vinylester resin. For these reasons, applicants traverse the provisional non-statutory double patenting rejections.

Assignee Requirements

The Office Action states that Claims 1-18 are directed to an invention not patentably distinct from Claims 1-16 of the commonly assigned '267 application in view of Collins or Vogel. Specifically, the Office Action states that the present claims employ polyamide in the neutron shield materials. The Office Action admits that the claims in the copending application '267 do not suggest the use of polyamides in neutron shield materials, but both Collins and Vogel do. The Office Action thus states that it would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone.

To resolve this issue, applicants' attorneys confirm that the inventions of the present application and the '267 application were commonly owned by Cogema Logistics (whose prior name was Societe pour les Transports de l'Industrie Nucleaire - Transnucleaire), as shown by the enclosed copy of a notarized deed dated July 14, 2002, at the time the inventions of the present application and the '267 application were made. In that regard, at the time the inventions were made, the inventors were employed by Cogema Logistics and achieved the inventions in the framework of their contract of employment. Thus, according to French employment law, the inventions were the property of Cogema Logistics.

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The Office Action states that Claims 1-11 and 13-18 are directed to an invention not patentably distinct from Claims 1-16 of commonly assigned '714 application in view of Collins or Vogel. Specifically, the Office Action asserts that the present claims employ polyamide in a neutron shield material, while the claims in the co-pending '714 application do not. Both Collins and Vogel are cited to suggest the use of polyamides in neutron shield materials. The Office Action concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of the suggested polymers given the disclosure that each would be suitable alone.

To resolve this issue, applicants' attorneys confirm that the inventions of the present application and the '714 application were commonly owned by Cogema Logistics (whose prior name was Societe pour les Transports de l'Industrie Nucleaire - Transnucleaire), as shown by the enclosed copy of a notarized deed dated July 14, 2002, at the time the inventions of the present application and the '714 application were made. In that regard, at the time the inventions were made, the inventors were employed by Cogema Logistics and achieved the inventions in the framework of their contract of employment. Thus, according to French employment law, the inventions were the property of Cogema Logistics.

Claim Rejections Under 35 U.S.C. § 103(a)

First, Claims 1-18 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Application Publication No. 2005/0012054 A1 (previously described herein as "the '267 application") in view of Collins or Vogel. Second, Claims 1-11 and 13-18 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Application Publication No. 2005/0001205 A1 (previously described herein as "the '714 application") in view of Collins or Vogel. Third, Claims 1-4 and 13-18 are rejected under 35 U.S.C. § 103(a) as being obvious over Collins. Fourth, Claims 6-9, 11, and 12 are rejected under 35 U.S.C. § 103(a) as being

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obvious over Collins as applied to Claim 1, and further in view of JP 55-119099 (hereinafter "the JP '099 reference"). Fifth, Claims 1-4 and 13-18 are rejected under 35 U.S.C. § 103(a) as being obvious over Vogel. Sixth, Claims 6-9, 11, and 12 are rejected under 35 U.S.C. § 103(a) as being obvious over Vogel as applied to Claim 1, and further in view of the JP '099 reference. Each of the rejections listed above is addressed in numbered sections (1)-(6) below.

1. Nonobvious Over the '267 Application Publication in View of Collins or Vogel

As mentioned above, Claims 1-18 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Application Publication No. 2005/0012054 A1 (previously described herein as "the '267 application") in view of Collins or Vogel. Applicants respectfully disagree.

Applicants respectfully submit that the '267 application publication is not prior art under 35 U.S.C. §§ 102(e), 102(b), or 102(a). Regarding § 102(e), the present application was filed in the United States on October 15, 2003, claiming a foreign priority date under 35 U.S.C. § 119 of October 25, 2002 (FR 02 13369), both of which predate the U.S. filing date of the '267 application publication, May 27, 2004. Applicants note that the international application from which the '267 application claims priority, PCT/FR02/04255, was not published in English, and therefore does not have a 102(e) prior art date.

The certified priority document for the present application was filed on October 25, 2003, as acknowledged in the Office Filing Receipt mailed January 20, 2004. To perfect such foreign priority for the present application, in accordance with M.P.E.P. § 706.02(b), applicants submit an English language translation of the French priority document along with a Declaration of S. Lenoir certifying that the submitted translation is a true translation.

The '267 application publication is also not prior art under § 102(b) or § 102(a) because its publication date (January 20, 2005) is well after the effective filing date of the present

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application. For these reasons, applicants traverse the rejection under § 103(a) as being obvious over the '267 application publication in view of Collins or Vogel.

2. Nonobvious Over the '714 Application Publication in View of Collins or Vogel

As mentioned above, Claims 1-11 and 13-18 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Application Publication No. 2005/0001205 A1 (previously described herein as "the '714 application") in view of Collins or Vogel. Applicants respectfully disagree.

Applicants respectfully submit that the '714 application publication is not prior art under 35 U.S.C. §§102(e), 102(b), or 102(a). As discussed above, the present application was filed in the United States on October 15, 2003, claiming a foreign priority date under 35 U.S.C. § 119 of October 25, 2002 (FR 02 13369), both of which predate the U.S. filing date of the '714 application publication, March 25, 2004. Applicants note that the international application from which the '714 application claims priority, PCT/FR02/03307, was not published in English, and therefore does not have a 102(e) prior art date.

As discussed above in section (1), the certified priority document for the present application was filed on October 25, 2003, as acknowledged in the Office Filing Receipt mailed January 20, 2004. As noted above, to perfect such foreign priority for the present application, in accordance with M.P.E.P. § 706.02(b), applicants have submitted an English language translation of the French priority document along with a declaration of S. Lenoir certifying that the submitted translation is a true translation.

The '714 application publication is also not prior art under § 102(b) or § 102(a) because its publication date (January 6, 2005) is well after the effective filing date of the present application. For these reasons, applicants traverse the rejection under § 103(a) as being obvious over the '714 application publication in view of Collins or Vogel.

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3. Nonobvious Over Collins

As mentioned above, Claims 1-4 and 13-18 are rejected under 35 U.S.C. § 103(a) as being obvious over Collins. Applicants respectfully disagree.

Independent Claim 1, as currently amended, recites a material for neutron shielding and for maintaining sub-criticality comprising a matrix based on a vinylester resin, at least one polyamide, and an inorganic filler capable of slowing and absorbing neutrons, the organic filler comprising at least one hydrogenated inorganic compound and at least one inorganic boron compound. Independent Claim 16, as currently amended, recites a process for the preparation of a material having the same limitations as the material in Claim 1. Because Claims 2-4 and 13-15 depend from Claim 1, and Claims 17 and 18 depend from Claim 16, the following analysis focuses on independent Claims 1 and 16.

The Office Action states that Collins discloses mixtures of thermoplastic polymers and boron nitride for use as a neutron shield. The polymers taught by Collins include polyolefins (polyethylene, polystyrene, polypropylene), acrylic polymers (polyacrylates and polymethacrylates), polyoxymethylene, polyamides, melamine resins, urea resins, cellulose ethers, alkyd resins, casein resins, vinyl polymers, cellulose esters, polyesters, and epoxy resins (see Collins, Col. 1, lines 48-54). The Office Action states that it would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone.

Applicants respectfully disagree. In that regard, Collins fails to describe a matrix based on a *vinylester resin* in combination with at least one polyamide, as recited in Claims 1 and 16. Applicants note that the acrylic polymers, such as polymethacrylates, and epoxy resins are not vinylester resins. As mentioned in the specification at page 4, last paragraph, to page 5, first paragraph, the use of vinylester resin in combination with a polyamide and an organic filler as

defined in the claims results in a material that has properties, in terms of neutron shielding and sub-criticality, at least as good as materials comprising the same vinylester resin and the same organic filler but without polyamide, while having a density lower than a neutron shielding material using the same vinylester resin and the same organic filler without polyamide. In addition, Collins does not teach or suggest including at least one hydrogenated inorganic compound, as recited in independent Claims 1 and 16. For these reasons, applicants respectfully submit that Claims 1-4 and 13-18 are nonobvious over Collins, and therefore are allowable.

4. Nonobvious Over Collins in View of the JP '099 Reference

As mentioned above, Claims 6-9, 11, and 12 are rejected under 35 U.S.C. § 103(a) as being obvious over Collins as applied to Claim 1 above, and further in view of the JP '099 reference. Applicants respectfully disagree. Claims 6-9, 11, and 12 all depend from Claim 1 and therefore include all of the limitations of Claim 1.

As stated above in section (3), Collins fails to describe a matrix based on a *vinylester resin* in combination with at least one polyamide and including at least one hydrogenated inorganic compound, as recited in independent Claims 1 and 16. JP '099 reference fails to cure the deficiencies of Collins. Therefore, applicants respectfully submit that Claims 6-9, 11, and 12 are nonobvious over Collins in view of the JP '099 reference, and therefore are allowable.

5. Nonobvious Over Vogel

As mentioned above, Claims 1-4 and 13-18 are rejected under 35 U.S.C. § 103(a) as being obvious over Vogel. Applicants respectfully disagree.

The Office Action states that Vogel discloses mixtures of polymer and boron compounds for use as a neutron shield. The polymers taught by Vogel include polyurethane, polyamide, polyethylene, polyfluoroethylene, polypropylene, epoxy resin, unsaturated polymerizable polyester, polyvinyl chloride, polyvinyl fluoride, copolymers of polyvinyl fluoride and polyvinyl

chloride, polystyrene and copolymers thereof, polymethacrylate, and synthetic rubber (e.g., polyisobutylene, butadiene-styrene polymerizes, chloroprene, and alkyl-polysulfides) (see Vogel, at Col. 1, lines 63-75). The Office Action states that it would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone.

Applicants respectfully disagree. In that regard, Vogel, like Collins (discussed above) fails to describe a matrix based on a *vinylester resin* in combination with at least one polyamide, as recited in independent Claims 1 and 16. In addition, Vogel does not teach or suggest including at least one hydrogenated inorganic compound, as recited in Claims 1 and 16. For these reasons, applicants respectfully submit that Claims 1-4 and 13-18 are nonobvious over Vogel, and therefore are allowable.

6. Nonobvious Over Vogel in View of the JP '099 Reference

As mentioned above, Claims 6-9, 11, and 12 are rejected under 35 U.S.C. § 103(a) as being obvious over Vogel as applied to Claim 1 above, and further in view of the JP '099 reference. Applicants respectfully disagree. As discussed above in section (4) with regard to Collins, the JP '099 reference also fails to cure the deficiencies of Vogel. Thus, applicants respectfully submit that Claims 6-9, 11, and 12 are nonobvious over Vogel in view of the JP '099 reference, and therefore are allowable.

Citation of Prior Art

The Office Action cites U.S. Patent No. 3,133,887, issued to Alliegro et al.; U.S. Patent No. 3,361,684, issued to Chvatal; U.S. Patent No. 2,796,411, issued to Zirkle et al.; and U.S. Patent No. 6,797,972, issued to Kamoshida et al., as prior art made of record and not relied upon. Applicants respectfully disagree with the Office Action statement that the prior art is pertinent to the applicants' disclosure.

CONCLUSION

In light of the foregoing remarks, applicants respectfully submit that the present application is in condition for allowance. The Examiner is invited to telephone the undersigned if any issues remain.

Respectfully submitted,

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Enclosures:

Replacement Drawing (FIG. 1)
Certificate of change of address and name
Declaration of Sophie Lenoir
English language translation of French Patent
Application No. 02 13369

I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date: 5/8/06 Carrie Julian

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